

## **REMARKS**

### **Amendment to the Drawings:**

Applicants have amended Fig. 1 to include the legend “Prior Art.” Accordingly, Applicants file herewith one (1) sheet of drawings, labeled “Replacement Sheet,” containing amended Fig. 1 and original Fig. 2. Applicants request that this replacement sheet be made of official record in the above-identified patent application.

### **Regarding the Office Action:**

Claims 19-36 remain pending and under current examination. In the Office Action, the Examiner rejected claims 19-36 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,274,386 to Pellon (“Pellon”) in view of U.S. Patent No. 7,127,008 to Kroeger (“Kroeger”). Applicants respectfully traverse the rejection for the following reasons.<sup>1</sup>

### **Rejection of Claims 19-36 under 35 U.S.C. § 103(a):**

Applicants request reconsideration and withdrawal of the rejection of claims 19-36. The Examiner’s arguments do not provide an appropriate supporting rationale to support his conclusion of obviousness regarding independent claims 1 and 19 in light of the decision by the Supreme Court in *KSR Int’l. Co. v. Teleflex Inc.*, 550 U.S. \_\_\_, 82 USPQ2d 1385 (2007) that would enable “prompt resolution of issues pertinent to patentability.” *See* M.P.E.P. § 2141, 8th Ed., Rev. 6 (Sept. 2007), pp. 2100-115 and 2100-117.

It appears that the Examiner attempted to rely on a rationale that “a person of ordinary skill in the art would have been motivated to combine the prior art to achieve the claimed invention and that there would have been a reasonable expectation of success.” M.P.E.P. § 2143(G). The Examiner improperly applied this rationale, at least because the alleged

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<sup>1</sup> The Office Action contains statements characterizing the related art and the claims. Regardless of whether any such statements are specifically identified herein, Applicants decline to automatically subscribe to any statements in the Office Action.

motivation to combine Pellon and Kroeger is based on mere conclusory statements. Applicants note that “rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” M.P.E.P. § 2141(III) (citations to *KSR* and *In re Kahn* omitted). The Examiner’s conclusory statements in support of the combination of Pellon and Kroeger undermines the Examiner’s allegations and clearly demonstrate nonobviousness of the claimed invention.

Applicants’ independent claim 19 recites, in part, “applying a Hilbert transform to that signal which is multiplied by the imaginary part of said complex weight coefficient,” and “combining said processed first and second digital signals into a weighted digital intermediate frequency signal by subtracting said second signal from said first signal.”

In view of Applicants’ claim 1, the Examiner recognized that “Pellon does not specify the use of a Hilbert Transform as the DPD [digital product detector].” Office Action, p. 2. The Examiner then applied Kroeger in an attempt to cure this deficiency, and alleged that “it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Pellon by incorporating the use of a Hilbert transform/time delay in the signal processing chain...” *Id.* The Examiner, however, has not clearly articulated a reason, other than these conclusory statements, to support such a combination of Pellon and Kroeger. Even if the hypothetical person of ordinary skill in the art would consider combining Pellon and Kroeger, he would still not arrive at the claimed invention, for the following reasons:

Pellon teaches that “the sampled digitized intermediate-frequency main signal on data path 26 is applied to first inputs of real multipliers 244 and 245, which receive at their second input ports the real and imaginary portions, respectively, of a weighting coefficient  $W_0$ .” Pellon,

col. 5, ll. 16-20, and Fig. 2. As the Examiner correctly points out, Pellon does not teach or suggest the claimed “applying a Hilbert transform to that signal which is multiplied by the imaginary part of said complex weight coefficient” (claim 19).

In addition, Pellon teaches that

[t]he weighted main signal at the output of multiplier 244 is applied to an input of real summing circuit 286, where it is added to the correspondingly weighted portions of all the auxiliary signals, summed together by real summing circuits 286a, 286b, . . . 286<sub>n-1</sub>. . . . The summed weighted output signal from real summing circuit 286 is applied over a data path 298 to a digital product detector 228. The summed, weighted composite signals produced at the output of summing circuit 287 are applied by way of a data path 299 to a second digital product detector 229. Pellon, col. 5, ll. 35-50.

In other words, Pellon teaches that each of the separately multiplied signals carried along data paths 26, 38a, 38b . . . 38n are summed at real summing circuit 286, 286a, 286b . . . 286n. Pellon does not teach or suggest the claimed “combining said processed first and second digital signals into a weighted digital intermediate frequency signal by subtracting said second signal from said first signal” (claim 19). That is, Pellon also does not teach or suggest subtracting any of second or subsequent signals carried along data paths 38a, 38b . . . 38n from a first signal carried along data path 26. *See also Pellon*, Fig. 2.

Kroeger does not cure the deficiencies of Pellon just discussed. First, Kroeger does not teach the claimed “duplicating said digital signal into a first and a second digital signal” (claim 19). Instead, Kroeger teaches that “a signal is received on line 54 and split into real and imaginary components as illustrated by blocks 56 and 58.” Kroeger, col. 10, ll. 58-60. First, Kroeger’s signals are analog, which is different from the claimed digital signals (and the signals taught by Pellon). Second, while a Hilbert Filter (64) is applied to imaginary portion (58), real (56) and imaginary (58) portions are not multiplied “by a real and an imaginary part of said

complex weight coefficient,” as recited in Applicants’ claim 19. Therefore, one of ordinary skill in the art at the time of the invention would not have been motivated to combine Pellon and Kroeger.

In addition, Applicants point out that Kroeger’s methods operate on a base band analog signal, for example, the signal  $r(t)$  (54) which is split into real and imaginary components. *See* Kroeger Fig. 4, and col. 10, lines 58-60. This contrasts with the claimed invention, which operates on “an intermediate frequency digital signal” (claim 19). And, while Pellon operates on intermediate frequency signals, the output of its digital product detector (DPD) blocks 228, 229 are base band signals composed of an in-phase component (296a) and a quadrature component (296b). *See* Pellon, Fig. 2, and col. 5, lines 53-58.

Applicants therefore submit that “combining known prior art elements is not sufficient to render the claimed invention obvious if the results would not have been predictable to one of ordinary skill in the art.” M.P.E.P. § 2143(A) (citation omitted). If this finding cannot be made, then this rationale cannot be used to support a conclusion of obviousness. *See* M.P.E.P. § 2143(D); *see also* M.P.E.P. § 2143.03(III). Even if a hypothetical person of ordinary skill in the art *could have* combined Pellon and Kroeger at the time the present invention was made, he would not have done so, at least because the results of so doing would not have been predictable. For example, it would not have been predictable to combine Kroeger’s base band analog signals, which are split in to real and imaginary portions, with Pellon’s summed base band digital signals, and such a combination would certainly not produce at least Applicants’ claimed “combining said processed first and second digital signals into a weighted digital intermediate frequency signal by subtracting said second signal from said first signal” (claim 19).

In view of the reasoning presented above, Applicants submit that claim 19 is nonobvious over Pellon in view of Kroeger, at least because the Examiner has not provided a clearly articulated rationale to support his allegations of obviousness. The Examiner's conclusory statements in support of the combination of Pellon and Kroeger undermines the Examiner's allegations and clearly demonstrate nonobviousness of the claimed invention.

Independent claim 19 should therefore be allowable, along with its dependent claims 20-23 and 36. Independent claim 24, while of different scope, contains recitations similar to claim 19 and should be allowable for the reasons presented regarding claim 19. Claims 25-35 should be allowable at least by virtue of their dependence on base claim 24. Applicants therefore respectfully request withdrawal of the 35 U.S.C. § 103(a) rejection.

**Conclusion:**

Applicants request reconsideration of the application and withdrawal of the rejection. Pending claims 19-36 are in condition for allowance, and Applicants request a favorable action. If there are any remaining issues or misunderstandings, Applicants request the Examiner telephone the undersigned representative to discuss them.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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